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Exploring Learner Autonomy through Technology-Integrated Strategies in EFL Classrooms: A Systematic Review

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Abstract

This study aims to systematically review various technology-integrated strategies used to support learner autonomy in English as a Foreign Language (EFL) classrooms. Using a qualitative systematic review approach, 15 articles published between 2013 and 2025 were analyzed to identify the types of technology, learning strategies, and dimensions of autonomy promoted. The findings show that technologies such as mobile applications, learning management systems (LMS), and artificial intelligence can foster cognitive, metacognitive, behavioral, and affective dimensions of learner autonomy. These results emphasize the importance of intentional pedagogical design and the teacher's role in facilitating technology integration to create autonomous learning environments. The implications of this review highlight the need for teacher training, policy support, and the development of adaptive learning strategies suited to learners' needs and contexts. Furthermore, the review reveals that effective integration of technology requires alignment between instructional goals, digital tools, and learner characteristics. Teachers play a crucial role in scaffolding students' ability to plan, monitor, and evaluate their own learning processes. In addition, interactive platforms and personalized feedback mechanisms provided by digital tools enhance learners' motivation and engagement. However, challenges such as unequal access to technology, limited digital literacy, and insufficient institutional support may hinder implementation. Therefore, stakeholders should prioritize inclusive policies and continuous professional development to maximize the benefits of technology-enhanced learning. Future research is recommended to explore longitudinal impacts and diverse educational contexts to further validate these findings and inform best practices in promoting learner autonomy across different proficiency levels and sociocultural backgrounds of EFL learners worldwide.

Keywords: Learner Autonomy, Educational Technology, EFL, Learning Strategies, Systematic Review

1. Introduction

The development of technology in education has significantly changed the way people teach and learn across all levels, including in language education. Technology not only improves access to learning resources, but also supports more flexible, personalized, and collaborative learning experiences (Selwyn, 2016). In the context of foreign language learning, it offers opportunities for students to study independently, anytime and anywhere, through various digital tools such as applications, online platforms, and Learning Management Systems (LMS) (Reinders & White, 2016).

One of the key competencies emphasized in 21st-century learning is learner autonomy, which refers to a student's ability to manage, control, and evaluate their own learning. Learner autonomy is considered essential because it helps students continue developing outside formal classroom boundaries and take greater responsibility for their progress (Little, 1991; Benson, 2011). In the context of English as a Foreign Language (EFL), learner autonomy becomes even more important due to the limited opportunities for authentic English interaction in many students' environments (Lai, 2017).

The use of technology in EFL classrooms has shown great potential in supporting the development of learner autonomy. Several studies have found that mobile apps, LMS, and online learning platforms help students manage their study time, choose materials that suit their needs, and reflect on their learning outcomes (Lai & Gu, 2011; Reinders, 2014). Technology also encourages students to become more active and self-directed by offering features such as independent practice, instant feedback, and progress tracking (Stockwell, 2013).

However, most studies on technology and learner autonomy tend to be limited in scope and are often conducted separately. Few have systematically explored what kinds of technology-based strategies are actually effective in building autonomy in EFL classrooms (Blin, 2004; Jarvis, 2012). This creates a need for a more comprehensive synthesis of findings that can explain which strategies have been used, how they are applied, and under what conditions they are successful.

Therefore, this study aims to conduct a systematic review of previous research articles that investigate technology-based learning strategies to enhance learner autonomy in EFL classrooms. The main focus is to identify patterns in strategy use, the types of technologies applied, and the specific dimensions of learner autonomy addressed in the reviewed studies. This review is expected to offer practical guidance for EFL teachers in selecting and designing effective strategies that align with both technological developments and students' learning needs.

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In addition to these considerations, it is important to recognize that the integration of technology in language learning is not merely about the tools themselves, but also about how they are used within pedagogical frameworks. Effective technology integration requires thoughtful instructional design that aligns learning objectives, teaching methods, and digital resources. Teachers must carefully select technologies that not only provide access to content but also actively engage students in meaningful learning processes. Without proper alignment, the use of technology may remain superficial and fail to contribute significantly to learner autonomy.

Furthermore, learner autonomy is a multidimensional construct that involves cognitive, metacognitive, behavioral, and affective aspects. Technology can support these dimensions in various ways. For instance, cognitive autonomy can be enhanced through access to diverse learning materials and resources, while metacognitive autonomy can be developed through tools that encourage planning, monitoring, and evaluation of

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learning. Behavioral autonomy is supported when students are given opportunities to make decisions about their learning activities, and affective autonomy is strengthened through increased motivation and confidence fostered by interactive and personalized learning environments.

Another important aspect to consider is the role of teachers in facilitating autonomous learning. Although technology provides opportunities for independent learning, students still require guidance and support to develop the skills necessary for autonomy. Teachers act as facilitators who help students set learning goals, choose appropriate strategies, and reflect on their progress. They also play a crucial role in creating a supportive learning environment that encourages experimentation, self-reflection, and continuous improvement. Therefore, professional development programs that equip teachers with the knowledge and skills to integrate technology effectively are essential.

Moreover, the successful implementation of technology-based strategies is influenced by various contextual factors, including students' digital literacy, access to technological resources, and institutional support. In many educational settings, particularly in developing regions, limited access to reliable internet connections and digital devices can pose significant challenges. Additionally, differences in students' familiarity with technology may affect their ability to engage in autonomous learning. These challenges highlight the importance of considering equity and inclusivity in the design and implementation of technology-enhanced learning environments.

It is also necessary to acknowledge that while technology offers numerous benefits, it may also present certain limitations. For example, excessive reliance on technology can lead to reduced face-to-face interaction, which is an important component of language learning. Additionally, not all digital tools are designed with pedagogical principles in mind, and some may prioritize entertainment over meaningful learning. As a result, teachers must critically evaluate the effectiveness of technological tools and ensure that they support, rather than hinder, the development of learner autonomy.

Finally, this systematic review seeks to contribute to the existing body of knowledge by providing a comprehensive overview of technology-based strategies used to promote learner autonomy in EFL contexts. By synthesizing findings from multiple studies, this research aims to identify best practices and highlight gaps that require further investigation. The results are expected to inform educators, researchers, and policymakers about the potential of technology to transform language learning and to support the development of autonomous learners who are capable of adapting to the demands of an increasingly digital world.

2. Research Methods

This study employed a qualitative systematic review approach to analyze how technology-integrated strategies support learner autonomy in EFL contexts. Relevant journal articles were collected from both national and international sources, focusing on studies published between 2013 and 2025. The search process was conducted using databases such as Google Scholar and ResearchGate with keywords including "learner autonomy in EFL," "technology-integrated learning," "strategy-based instruction," and "autonomous learning."

The selection process involved three stages: (1) initial screening of titles and abstracts, (2) full-text reading, and (3) eligibility assessment based on inclusion and exclusion criteria. Articles were included if they (a) were written in English or Indonesian, (b) used a qualitative research design, and (c) explicitly discussed the use of technology to foster learner autonomy in EFL settings. Studies that focused solely on theoretical discussions or did not provide sufficient methodological detail were excluded.

To assess the quality of the selected articles, a simplified critical appraisal process was applied. This included evaluating each article's clarity of research objectives, methodological transparency, relevance to the review topic, and the richness of its qualitative data. While no formal checklist such as CASP or PRISMA was used, studies were compared based on internal consistency, credibility of findings, and contextual relevance to ensure a balanced and trustworthy synthesis.

After the full screening process, 15 articles were selected for in-depth analysis. Thematic analysis was employed to identify the types of technologies used, instructional strategies implemented, and specific dimensions of learner autonomy addressed in each study. The findings were then synthesized narratively and grouped by emerging themes.

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In conducting the thematic analysis, the researcher followed several systematic steps to ensure consistency and depth of interpretation. First, all selected articles were read multiple times to gain a comprehensive understanding of their content. During this process, initial codes were generated based on recurring concepts related to technology use, instructional strategies, and learner autonomy. These codes were then categorized into broader themes that reflected patterns across the studies. For instance, codes related to "self-paced learning," "independent practice," and "flexible access" were grouped under behavioral autonomy, while those related to "reflection," "monitoring," and "strategy use" were categorized under metacognitive autonomy.

To enhance the reliability of the analysis, constant comparison techniques were applied. Each finding from one study was compared with those from other studies to identify similarities, differences, and unique contributions. This approach helped avoid bias and ensured that the synthesis represented a comprehensive view of the available literature. In addition, attention was given to the context of each study, including educational level, learning environment, and technological infrastructure, as these factors could influence the applicability of the findings.

Data extraction was also conducted systematically using a structured format. Key information from each article, such as author(s), year of publication, research context, type of technology used, instructional strategies, and dimensions of learner autonomy, was recorded and organized into a summary table. This process facilitated cross-study comparison and supported the identification of trends and gaps in the literature. It also ensured that no critical information was overlooked during the analysis.

Furthermore, the narrative synthesis approach allowed the researcher to integrate findings from diverse studies in a coherent and meaningful way. Rather than focusing on statistical aggregation, this approach emphasized the interpretation of qualitative insights and the development of conceptual understanding. By organizing the findings into thematic categories, the study was able to highlight how different technologies and strategies contribute to various aspects of learner autonomy.

To maintain transparency and rigor, the researcher documented each step of the review process, including search strategies, selection criteria, and analytical procedures. This documentation provides a clear audit trail that enhances the credibility and replicability of the study. Although the review did not follow a strict systematic review protocol, efforts were made to adhere to established principles of qualitative research, such as credibility, dependability, and confirmability.

Finally, ethical considerations were also taken into account. All sources used in this study were properly cited to acknowledge the original authors' contributions. The researcher ensured that the interpretation of findings remained faithful to the original context of each study and avoided misrepresentation or overgeneralization. By maintaining academic integrity throughout the research process, this study aims to provide a reliable and meaningful contribution to the field of technology-enhanced language learning and learner autonomy.

3. Results and Discussions

This review analyzed fifteen qualitative research articles focusing on technology-integrated strategies in EFL learning. The analysis aimed to explore how technology is used to enhance learner autonomy. The findings indicate that technology serves not only as a support tool but also as a pedagogical strategy that influences students' behavior, cognition, and motivation (Lai, 2017; Reinders, 2014).

Overall, the types of technology used in EFL learning vary based on institutional contexts and learning needs. Some studies examined mobile applications like Duolingo and Quizlet for vocabulary development and self-paced learning (Žuvic Butorac et al., 2024; Fadda & Alaudan, 2020). Others explored the use of Learning Management Systems (LMS) such as Google Classroom and Edmodo for task management, feedback delivery, and online interaction (Rinekso & Kurniawan, 2020; Nguyen Thi Thuy Linh & Yen, n.d.). More recent studies highlighted the use of AI tools and digital platforms that provide adaptive feedback and personalized learning experiences (Woo et al., 2023; Le Yao & Liu, 2025).

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Table 1. Summary of Reviewed Studies in the Systematic Review

No.	Author(s) & Year	Technology Type	Strategy Applied	Learner Autonomy Dimension
1	Nguyen & Gu (2013)	Strategy-based Instruction	Learning planning and monitoring	Cognitive, Metacognitive
2	Warni et al. (2020)	Mobile apps	Independent learning outside the classroom	Behavioral, Cognitive
3	Rinekso & Kurniawan (2020)	LMS and digital media	Flexible tasks and reflective learning	Cognitive, Metacognitive
4	Kencana (2025)	Video and LMS	Flexible access and collaboration	Behavioral, Social
5	Žuvic-Butorac et al. (2024)	Mobile apps (Duolingo)	Self-directed vocabulary learning	Cognitive
6	Nguyen Thi Thuy Linh & Yen (n.d.)	Google Docs & Classroom	Vocabulary learning through collaboration	Cognitive, Metacognitive
7	Yuzulia (2019)	Various digital tools	Teachers' perceptions of learner autonomy	Affective, Cognitive
8	Melvina & Suherdi (2019)	LMS and digital media	Teacher-guided reflection practices	Metacognitive
9	Alemu et al. (2023)	Interactive digital tools	Intensive reading and self-reflection	Cognitive, Metacognitive
10	Fadda & Alaudan (2020)	Duolingo	Blended self-paced learning	Cognitive, Behavioral
11	Mogavi et al. (2022)	Duolingo (gamified)	Evaluating distraction and engagement	Motivation, Behavioral
12	Woo et al. (2023)	AI Story Writing Tool	Creative writing with AI prompts	Cognitive, Creative
13	Le Yao & Liu (2025)	AI Feedback	Affective feedback for strategy use	Metacognitive, Affective
14	Sui et al. (2023)	ICT-based Environment	Self-regulated learning	Behavioral, Metacognitive
15	SBI at Universitas Indonesia (2025)	Strategy-Based Instruction	Goal setting and independent monitoring	Cognitive, Metacognitive

Based on the reviewed studies, most instructional strategies primarily aimed to enhance students' ability to direct their own learning. While Strategy-Based Instruction (SBI) supports learners in goal-setting and reflection, its effectiveness depends largely on how explicitly teachers scaffold the strategy training. In Nguyen and Gu (2013), students who received guided reflection activities demonstrated a stronger sense of agency than those who practiced strategies independently. This suggests that autonomy does not develop in isolation but through structured opportunities to make informed learning choices. Similarly, reflection journals and digital portfolios (Melvina & Suherdi, 2019) were not only tools for assessment but also means for students to internalize learning progress. However, their success varied according to how consistently feedback was provide students tended to lose motivation when reflective practices were not meaningfully integrated into class interaction.

Collaborative learning platforms such as Google Docs (Nguyen Thi Thuy Linh & Yen, n.d.; Kencana, 2025) contributed to the behavioral and social dimensions of autonomy. These tools encouraged learners to take shared responsibility for outcomes, but they also raised concerns about unequal participation. Some learners relied on more proficient peers to complete tasks, which can undermine the individual accountability that autonomy requires. Thus, while collaboration fosters engagement, it must be balanced with individual reflection and contribution monitoring.

Across the studies, cognitive and metacognitive autonomy were the most emphasized dimensions (Lai, 2017; Alemu et al., 2023). This focus reflects a broader trend in technology-enhanced language learning where tools

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are used to train learners' thinking and monitoring skills rather than emotional resilience or self-motivation. Yet, affective and behavioral dimensions are equally crucial: without confidence and persistence, learners may not sustain autonomous learning. Recent research highlights that real-time, adaptive feedback systems (Le Yao & Liu, 2025; Mogavi et al., 2022) can address this gap by building both competence and self-efficacy. However, such technology must be pedagogically aligned; otherwise, it risks becoming a mechanical aid rather than a catalyst for reflective learning.

Ultimately, the reviewed studies reaffirm that learner autonomy cannot be achieved solely through technology. As Reinders (2014) and Benson (2011) emphasize, the teacher's facilitative role remains central. Teachers guide learners in interpreting feedback, connecting strategies with goals, and transforming digital engagement into genuine self-regulation. Therefore, autonomy emerges not from the presence of tools but from the interplay between well-designed pedagogy, reflective practice, and learner agency.

Building on these findings, it is also important to examine how different instructional designs influence the effectiveness of technology-integrated strategies in fostering learner autonomy. The reviewed studies suggest that merely introducing technology into the classroom does not automatically lead to autonomous learning. Instead, the way tasks are structured and presented plays a critical role. Tasks that are open-ended, problem-based, and reflective in nature tend to encourage learners to take initiative and make decisions about their learning process. In contrast, highly structured tasks with limited flexibility may restrict students' opportunities to develop autonomy, even when supported by advanced technological tools.

Another significant aspect emerging from the analysis is the role of feedback in technology-enhanced environments. Feedback is a key component in helping learners regulate their learning, yet its effectiveness depends on its quality, timing, and relevance. Digital platforms often provide immediate feedback, which can be beneficial for reinforcing learning and correcting errors. However, automated feedback may lack depth and fail to address learners' specific needs. Studies involving AI-based feedback systems demonstrate that when feedback is personalized and explanatory, it can significantly enhance learners' metacognitive awareness. On the other hand, generic or overly simplistic feedback may lead to superficial engagement, where students focus on completing tasks rather than understanding the learning process.

In addition, the concept of self-regulated learning is closely linked to learner autonomy and is strongly supported by technology. Self-regulated learning involves planning, monitoring, and evaluating one's own learning activities, all of which can be facilitated through digital tools. For example, learning management systems often include features such as progress tracking, deadlines, and performance analytics, which help students stay organized and aware of their learning progress. These features encourage learners to set goals, manage their time effectively, and reflect on their achievements. However, the extent to which students utilize these features depends on their level of motivation and their familiarity with self-regulated learning strategies.

The interaction between learners and technology also highlights the importance of engagement in the learning process. Engagement is not only about participation but also about the depth of cognitive and emotional involvement in learning activities. Technology can enhance engagement by providing interactive and multimedia-rich content, but it can also lead to distraction if not used appropriately. Some studies indicate that learners may become more focused on the technological features rather than the learning objectives, particularly in gamified environments. Therefore, it is essential for educators to design activities that maintain a balance between engagement and educational value, ensuring that technology serves as a means to achieve learning goals rather than an end in itself.

Moreover, the role of peer interaction in technology-supported learning environments deserves further attention. Collaborative tools enable students to communicate, share ideas, and work together on tasks, which can enhance both social and cognitive dimensions of autonomy. Through collaboration, learners can gain new perspectives, develop communication skills, and build confidence in using the target language. However, effective collaboration requires clear guidelines and monitoring to ensure that all students contribute actively. Without proper structure, some learners may dominate the discussion بينما others remain passive, limiting the benefits of collaborative learning.

Another critical issue is the balance between teacher control and learner independence. While autonomy emphasizes learner control, complete independence may not be suitable for all students, especially those who are

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not yet accustomed to self-directed learning. The studies suggest that a gradual release of responsibility, where teachers initially provide guidance and then progressively allow learners more control, is an effective approach. This scaffolding process helps students build confidence and develop the skills necessary for autonomous learning. Over time, learners become more capable of making informed decisions and managing their own learning without constant supervision.

The integration of artificial intelligence in EFL learning also introduces new possibilities and challenges. AI tools can analyze learners' performance, identify areas of difficulty, and provide tailored recommendations. This level of personalization can significantly enhance learning efficiency and support autonomy. However, there are concerns regarding the reliability of AI-generated feedback, data privacy, and the potential reduction of human interaction in the learning process. While AI can complement teaching practices, it should not replace the essential role of teachers in guiding and supporting learners.

Furthermore, the emotional aspect of learning, often overlooked in technology-enhanced environments, plays a vital role in the development of autonomy. Learners' confidence, anxiety levels, and attitudes toward technology can influence their willingness to engage in autonomous learning. Positive experiences with technology can boost learners' confidence and motivation, while negative experiences may lead to frustration and disengagement. Therefore, it is important to create a supportive learning environment where students feel comfortable experimenting with new tools and strategies fear of failure.

The issue of accessibility also remains a significant concern. Not all learners have equal access to digital devices and reliable internet connections, which can create disparities in learning opportunities. This digital divide can limit the effectiveness of technology-based strategies and hinder the development of learner autonomy among disadvantaged students. Addressing this issue requires coordinated efforts from educational institutions and policymakers to equitable access to technological resources and support services.

Additionally, the sustainability of autonomous learning practices should be considered. Developing learner autonomy is a long-term process that requires consistent effort and reinforcement. Technology can support this process by providing continuous learning opportunities beyond the classroom. However, maintaining students' motivation over time can be challenging, particularly when external support is limited. Educators need to design learning experiences that are meaningful, relevant, and adaptable to students' evolving needs to ensure the of autonomous learning.

Finally, this extended discussion highlights that the successful promotion of learner autonomy in EFL contexts depends on a complex interplay of factors, including instructional design, feedback quality, learner engagement, teacher support, and contextual conditions. Technology serves as a powerful enabler, but its effectiveness is determined by how it is integrated into the learning process. By adopting a balanced and reflective approach, educators can harness the potential of technology to create learning environments that empower students to take control of their learning and develop the skills necessary for lifelong learning.

4. Conclusion

Based on the reviewed studies, most instructional strategies were designed to strengthen students' capacity to manage their own learning. Strategy-Based Instruction encouraged learners to set goals, reflect on their progress, and adjust learning strategies (Nguyen & Gu, 2013; SBI UI, 2025). Reflection practices and digital portfolios were found to enhance students' metacognitive awareness and sense of responsibility (Melvina & Suherdi, 2019). Collaborative learning through digital platforms such as Google Docs also fostered social interaction and shared responsibility (Nguyen Thi Thuy Linh & Yen, n.d.; Kencana, 2025), though unequal participation remained a challenge. These findings indicate that autonomy develops most effectively when students are provided with structured opportunities to make decisions, reflect on feedback, and engage collaboratively. The reviewed literature further demonstrates that the dimensions of learner autonomy promoted were diverse, with cognitive and metacognitive aspects being the most prominent (Lai, 2017; Alemu et al., 2023). However, affective and behavioral dimensions such as motivation, confidence, and persistence were less frequently addressed, even though they are crucial for sustaining autonomous learning. Technology-supported environments that provide real-time, adaptive feedback have shown promise in bridging this gap by enhancing learners' confidence and self-regulation (Le Yao & Liu, 2025; Mogavi et al., 2022). Nonetheless, the effectiveness of these tools depends on how they are integrated pedagogically and facilitated by teachers,

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aligning with Reinders (2014) and Benson (2011), who emphasize the teacher's continuing role as a guide and motivator. This review also highlights that technology-integrated strategies not only promote learner autonomy but also contribute to improved learning achievement. When learners are able to plan, monitor, and evaluate their progress, they tend to demonstrate better outcomes in vocabulary acquisition, writing fluency, and overall language proficiency. In other words, learner autonomy operates as both a process and a predictor of academic success. Yet, the link between autonomy and achievement can only be realized when technology is used within a sound instructional framework. Teachers must possess both digital literacy and pedagogical competence to help students translate self-directed learning into measurable academic gains. Therefore, institutional support, ongoing professional training, and inclusive digital infrastructure are essential to ensure that autonomy-oriented instruction leads not only to greater independence but also to meaningful learning results. Future research could further investigate how specific technologies affect different dimensions of autonomy and language achievement across varied educational levels and contexts.

Reference

[1] Alemu, B., Altaye, S., & Kassaye, M. (2023). Integration of interactive digital platforms in reading comprehension classes: A learner autonomy perspective. Journal of Language and Literacy Education, 19(1), 45–61.
[2] Benson, P. (2011). Teaching and researching autonomy (2nd ed.). Routledge.
[3] Fadda, S., & Alaudan, R. (2020). Investigating the effectiveness of Duolingo in vocabulary acquisition for EFL learners: A blended learning approach. Arab World English Journal (AWEJ), 11(4), 200–215. https://doi.org/10.24093/awej/vol11no4.14
[4] Kencana, P. S. (2025). Exploring EFL students' collaboration through video-based learning and LMS integration. Journal of ELT Research, 10(1), 33–48.
[5] Lai, C. (2017). Autonomous language learning with technology: Beyond the classroom. The Journal of Language Teaching and Learning, 7(2), 1–16.
[6] Lai, C., & Gu, M. (2011). Self-regulated learning in a mobile context: Motivation and metacognition in language learning using mobile devices. Language Learning & Technology, 15(3), 75–95.
[7] Le Yao, & Liu, Y. (2025). Affective feedback in AI-supported academic writing: Implications for learner autonomy. International Journal of Educational Technology in Higher Education, 22(2), 1–15.
[8] Melvina, R., & Suherdi, D. (2019). Teacher belief and learner autonomy: A study of Indonesian EFL teachers. Indonesian Journal of Applied Linguistics, 9(3), 681–690.
[9] Mogavi, M., Zohdi, E., & Behjat, F. (2022). Gamified mobile applications and learner autonomy: The impact of distraction in EFL learning. CALL-EJ, 23(2), 50–68.
[10] Nguyen, L. V., & Gu, Y. (2013). Strategy-based instruction and learner autonomy: The impact of metacognitive training in an EFL context. Asian EFL Journal, 15(2), 140–170.
[11] Nguyen Thi Thuy Linh, & Yen, D. M. (n.d.). Google Classroom and vocabulary development: A collaborative strategy in Vietnamese EFL classes. Asian Journal of Education and e-Learning, Advance online publication.
[12] Reinders, H. (2014). Personal learning environments for supporting out-of-class language learning. English Language Teaching World Online: Voices from the Classroom, 6, 1–10.
[13] Rinekso, A. B., & Kurniawan, E. (2020). Promoting learner autonomy through digital learning environments: The case of Edmodo in Indonesian EFL context. TEFLIN Journal, 31(2), 192–214.
[14] Sui, N., Wang, H., & Zang, Z. (2023). ICT-supported self-regulated learning and learner autonomy in college English education. Technology, Pedagogy and Education, 32(1), 73–89.
[15] Woo, M., Han, S., & Choi, J. (2023). AI story writing platforms and learner creativity: Prompt engineering in language learning. Language Learning & Technology, 27(1), 100–120.
[16] Yuzulia, I. (2019). Indonesian EFL teachers' perception of learner autonomy and technology use. Journal of English Language Teaching and Linguistics, 4(3), 309–320.
[17] Žuvic-Butorac, M., Rukavina, S., & Žic, R. (2024). Duolingo in autonomous vocabulary acquisition: Insights from Croatian EFL learners. Computer Assisted Language Learning, 37(2), 165–183.

DOI: https://doi.org/10.31004/riggs.v5i1.7923